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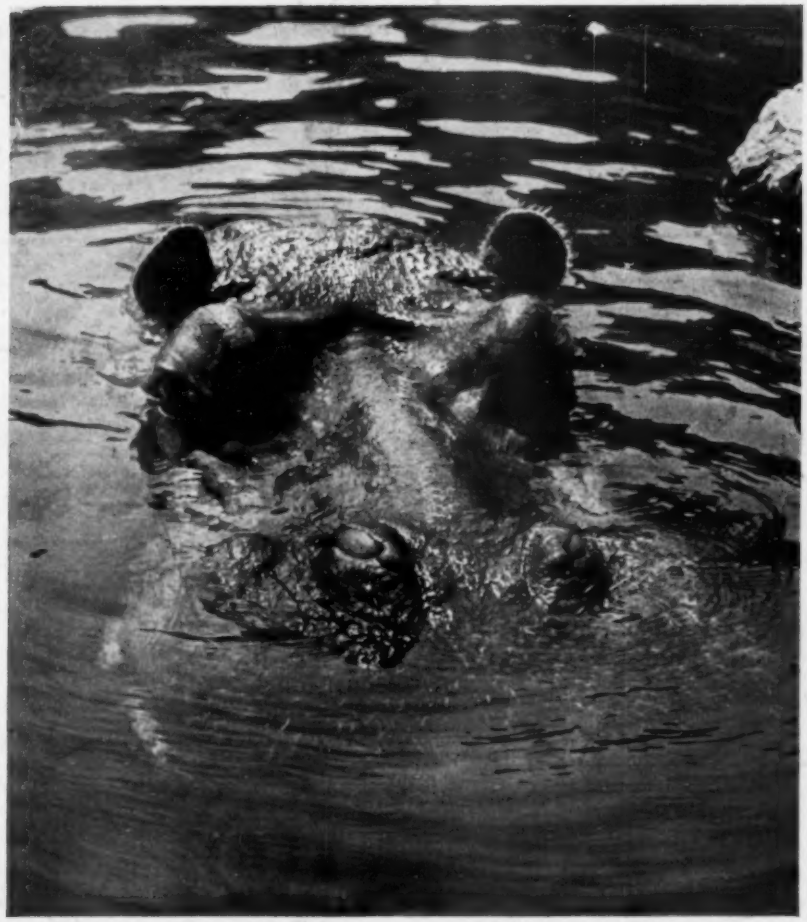
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



August 9, 1941

Can You Do This?

See Page 91

A SCIENCE SERVICE PUBLICATION

Do You Know?

The British Broadcasting Company uses 34 foreign languages in its overseas *broadcasts.*

The first known writer on *psychology* was Aurelius Cornelius Selsus, a Roman who lived about 25 B.C. to 50 A.D.

Naming *submarines* after fish, the U. S. Navy has some new ones named Snook, Raton, Scamp, Pogy, Mingo, Tunny, and Pargo.

Because Americans do not like the strong flavor of *soy beans* as eaten in the Orient, mills in this country apply a de-bittering process.

A *smoke signal* system to show incoming pilots wind conditions at ground level has been designed for the new Washington National Airport.

Glass has found greater use as a chemical engineering material since glass makers found ways of making shapes and weights of single glass pieces supposed to be impossible.

A German report says that the *"Transparent Man,"* made for the Hygiene Museum at Dresden some years ago, is now "talking" in two languages, lecturing on functions and organs of the body.

The first *zoo* was in the home, says Prof. E. A. Andrews, eminent zoologist, explaining that ancient hunters would bring home young wild creatures and these became pets, curiosities, and beasts of burden.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

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RESOURCES

How much crude oil did we have in reserve at the beginning of the year? p. 87.

How much tin have we on hand? p. 87.

Newfoundland is attempting to revive its *whaling* industry.

The earth's annual growth of *vegetation* weighs about 32 thousand million tons.

Soldiers in the U. S. Army get 10 ounces more *food* per day now than in the World War.

The British army is undertaking an *agricultural program* in which the army will cultivate available land.

Rated in order of size, the world's largest *diamonds* have been the Cullinan, the Excelsior, the Vargas, and the Jonker.

Since December, *cellulose* has been mixed with flour in Norway's bread.

The British colony of *Hong Kong* in China has more than 1,000,000 inhabitants.

In ancient Zoroastrian religion of Persia the equivalent of *hell* was a bitter cold place.

Smallest North American fish is a top *minnow* with the long name *Heterandria formosa* Agassiz.

Aluminum is rated vital to defense today; in 1888 the United States produced only seven tons of this metal.

SCIENCE NEWS LETTER

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PUBLIC HEALTH

Plague Epidemic Is Possible For U.S. Under War Stress

American Medical Association Warns of Consequences Without Careful Integration of Plague Control Work

A WARNING that the United States may have a plague epidemic to combat is issued by the American Medical Association through an editorial in its journal. (Aug. 2)

While typhus is being held in check only with the greatest difficulty in Europe and may have reached epidemic proportions in Poland and the Balkans, the AMA pronouncement declares that "no doubt plague, as far as this country is concerned, is a problem of greater potentiality."

Plague is present on the Pacific coast, not as human cases, but in fleas of rats, ground squirrels, and marmots. From these sources it is feared that the dread disease can spread to cause an epidemic in humans when conditions are suitable.

Long-continued and careful plague control, involving ratproofing of buildings, trapping, poisoning and examinations of dead rodents, must be practiced in any area in which plague has appeared.

The consequences may be tragic, the AMA warns, if there is not a careful integration of the plague control activities of cities, counties, states and the federal government, with the use of trained personnel and adequate funds.

The four horsemen of the apocalypse, war, hunger, disease and death, travel with the increased speed of mechanized transportation, it is pointed out. Sudden and widespread outbreaks of disease arising from hidden infections are more likely than ever. The insulation of this country from the disease consequences of war will prove a colossal task and will require the most careful planning and effort.

Science News Letter, August 9, 1941

PUBLIC HEALTH

Health Service Sends Experts To Scene of Sleeping Sickness

AN EXPERT on epidemics, Dr. James P. Leake, has been sent to North Dakota by the U. S. Public Health Service to watch developments in the outbreak of sleeping sickness (encephalitis) there.

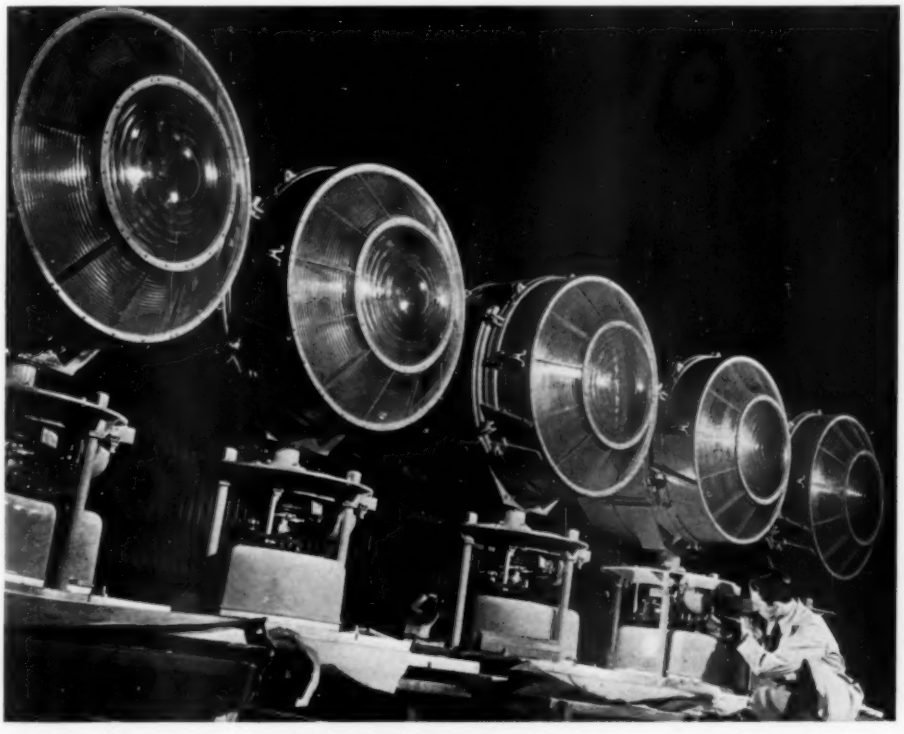
A sharp increase in the number of cases to 65 for the week ending July 26 was reported to the Health Service. This is more than double the number reported for the previous week—31.

W. L. Jellison, an entomologist, was also sent to North Dakota from the Hamilton, Mont., laboratory of the U. S. Public Health Service, to investigate reports of an increase in the number of mosquitoes at the scene of the sleeping sickness outbreak. It is not known that mosquitoes have anything to do with the spreading of sleeping sickness, but since the carrier of the disease is still unidentified, the possibility will be thoroughly explored.

The number of cases of infantile paralysis in the United States is also climbing, reports received in Washington indicate. The total number of cases for the week ending July 26 was 302 as compared with 246 for the previous week and 187 for the week before that.

Nearly half (45%) of the infantile paralysis cases were reported from two states, Alabama and Georgia. In Georgia, however, there was a slight decrease to 79 cases from 91 the previous week. In Alabama, the number increased from 46 to 58.

Although 71% of all the infantile paralysis cases were in the South Atlantic and East-South-Central part of the United States there was some increase in the northern states and four cases were reported in New England where in previous weeks there was none.



AIRWAY "LIGHT BUOYS"

These 36-inch, double end rotating beacons, coming off the production line at the Cleveland, Ohio, Lighting Division of the Westinghouse Electric and Manufacturing Company, are to guide night-flying pilots. Each beacon throws a 1,800,000-candle power beam in two directions simultaneously that can be seen, on clear nights, for 20 miles.

This fact, coupled with word received from the Canadian Province of Manitoba that 101 cases of infantile paralysis and two deaths have been reported there between July 1 and July 25, may indicate that the outbreak is no longer confined to the South.

Science News Letter, August 9, 1941

PUBLIC HEALTH

Pollen Counts Help Hayfever Sufferers

By H. ALLEN MOYER, M.D.
Michigan Commissioner of Health

FOR the benefit of hay fever sufferers, the Michigan Department of Health during the summer of 1940 made what is probably the first state-wide survey of pollen in the upper air.

For the collection of pollen, 50 stations were selected throughout the state covering the shore lines and also representative inland areas of both the Upper and Lower Peninsulas. Some of the stations were in agricultural areas where it was expected that pollen counts would be high while others were in regions where hay fever patients have been accustomed to find relief.

The pollen was collected on glass slides which had been given a thin film of white vaseline. The slide was exposed for a period of 24 hours, at a distance of 25 or more feet above the ground and protected by a small shelter. The exposed slides were sent to the Michigan Department of Health Laboratories at Lansing where the various kinds of pollen were identified and the pollen counts were made.

The total kinds and numbers of pollen grains were determined on one square centimeter of slide area. By applying a conversion factor (a different factor for each size of pollen grain) to the number of pollens on this area the count was expressed as pollen grains per cubic yard of air for each 24-hour period.

Usually not more than four or five kinds of pollen were found on any one slide and as a rule only two or three kinds were present in significant quantities. Up to August 15, the chief pollens were grasses and plantain. After August 15 ragweed pollen was most abundant, accounting for 95 to 98 per cent of the total pollen.

The Department of Health warns interested hay fever victims that the findings of the pollen survey are for only one year and are therefore not conclusive. A second count will be made in 1941.

Science News Letter, August 9, 1941

NUTRITION

Bad Tempers, Inefficiency, Traced to Lack of Vitamin B_1

Eleven Women on Sort of Diet Thousands of Americans Eat Regularly Develop Very Serious Symptoms

SHORT TEMPERS, inefficiency, headaches, backaches, and stomach distress after meals are what come from eating regularly over a long period a diet that is just a little short in the morale vitamin, B_1, diet studies at the Mayo Clinic show.

Eleven women, chosen for their previous record of good health, lack of "nerves," willingness and ability to cooperate, were the human guinea pigs for this study just reported by Dr. Ray D. Williams and Dr. H. L. Mason.

In contrast to previous studies in which human subjects developed typical neurasthenia on diets with a very low vitamin B_1 ration, these women were given the sort of diet thousands of American families regularly eat. It consisted of white bread, corn flakes, polished rice, sugar, skimmed milk, beef, cheese, egg white, butter, vegetable fat, cocoa, gelatine, canned fruits, canned vegetables and coffee. It was a little but not markedly low in its content of vitamin B_1.

After three months, one of the women developed such disturbing symptoms that she had to be taken off the diet and given doses of the vitamin. The others continued with the diet for from about four to six and one-half months. Besides low blood pressure, capricious appetites, anemia and signs of disturbed heart action, these women, after several weeks on the diet, showed the following changes in behavior:

"The subjects became depressed, irritable, quarrelsome and fearful. They became inefficient in their work because of generalized weakness, were inattentive to details of their tasks, were confused in thought, uncertain of memory and lacked manual dexterity. These abnormalities progressed to a degree which disabled six subjects in the performance of work to which they long had been accustomed."

"Headache, backache, dysmenorrhea, soreness of muscles, gastric distress after meals, sleeplessness, tenseness, paresthesia, (burning or prickling feelings), intolerance to noise and increased sensitivity to painful stimuli were frequent complaints, although these signs and symptoms were entirely of a subjective nature. The significance of these evidences of abnormalities was increased, however, because of the careful selection of subjects, their continuous cooperation and ability to work before the period of restriction of thiamin (vitamin B_1) and their subsequent normal behavior when, without other change in environment or diet, the allowance of thiamin was increased."

The amount of Vitamin B_1 a normal person needs, the doctors conclude, must be determined "in terms of the speed at which he wishes to live, the activities he wishes to pursue," and also according to individual personal differences. The optimal intake is not less than 0.5 mg and not more than 1.0 mg per 1,000 calories of an ordinary diet.

The amount of this vitamin which after next Jan. 1 will be required by law in the new enriched bread has been set at not less than 1.66 mg and not more than 2.5 mg per pound loaf of bread.

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MEDICINE

Mobile Laboratory Fights Infantile Paralysis

NEWEST weapon that will be speeding across country to fight infantile paralysis outbreaks this summer along with "iron lungs," splints and the like, is the laboratory on wheels of the University of Michigan School of Public Health.

It will go to communities having no laboratory facilities, where infantile paralysis outbreaks frequently occur, and will be used to collect specimens needed in the search for a means of preventing or curing the crippling malady, Basil O'Connor, president of the National Foundation for Infantile Paralysis, said in announcing the grant which makes possible the operation of the laboratory.

Science News Letter, August 9, 1941

Soy flour is gaining use in making doughnuts and ice cream cones.

MEDICINE

Pectin May Be Substituted For Blood in Treating Shock

Tests on Animals Show That Standby for Jelly-Making Can Be Used Safely and May Be Useful Against Bleeding

PECTIN, the housewife's standby for jelly-making, may be used as a substitute for precious blood to be transfused into the veins of war-wounded soldiers and civilians to save them from dying of shock, Dr. F. W. Hartman and associates of the Henry Ford Hospital, Detroit, propose. (*Annals of Surgery*, August.)

Tests on patients, guinea pigs, rabbits and dogs, conducted by Dr. Hartman, Dr. Victor Schelling, Dr. Henry N. Harkins and Dr. B. Brush, show that pectin solutions may be useful in treating shock and that they can be used safely.

"The present war has reemphasized the urgent need for blood and blood plasma in the fluid or desiccated (dried) state, which may be used to combat shock and hemorrhage," the Detroit doctors declare.

Collection of dried blood plasma for American troops has been undertaken by the American Red Cross, but even with the largest drying units only 1,000 or 1,200 units of about one-half pint each can be produced in a week.

"From the standpoint of production alone, to say nothing of cost, transportation, storage and application, it seems obvious that some other substances which may be used as substitutes or supplements for blood and blood plasma must be found," Dr. Hartman and associates point out.

The primary need in cases of shock and hemorrhage, they explain, is to replenish the volume of fluid circulating in the veins with a fluid which has identical or similar physical characteristics to the fluid part of the blood. The red blood cells in many cases are not needed and may even be undesirable.

Isinglass (fish gelatin) and gum acacia solutions have been tried as blood substitutes but have not proved entirely satisfactory. The Detroit doctors find that pectin solutions, properly prepared, have the necessary physical characteristics for transfusion into veins and that they do not produce any damage as measured by tests of kidney and liver function.

Pectin, of course, is abundantly available at a nominal cost and the solutions for transfusion can be easily prepared.

It shows promise as a remedy for shock, although so far it has been used chiefly as a substitute for blood transfusions to ward off shock from surgical operations in a small number of cases.

Science News Letter, August 9, 1941

FIRE GUN

Trigger control speeds firefighting with this new carbon-dioxide extinguisher. Not only does it permit the device to go into action faster, but it also prevents wasting of the gas while the operator is maneuvering around the blaze. The nozzle arm is equipped with a swivel, so that the discharge horn is held in a down position when the extinguisher is not in use. To operate, the horn is swung into a discharge position, it is aimed at the fire and the trigger is pulled. (Walter Kidde and Co.)

NUTRITION

Plenty of Vitamin A Is Available for U. S.

FEARS that some national emergency might result in a serious shortage in the United States of vitamin A, essential for normal vision, are not justified, says Dr. Harold M. Barnett, of the Barnett Laboratories, Long Beach, Calif., in a report to the American Chemical Society.

American grown carrots and alfalfa offer unlimited quantities of the vitamin, and they offer a much more convenient source than fish oil and palm oil, he believes.

"Fish must be captured from the waters and palm oil is an imported product," he says. In contrast, carrots and alfalfa can be grown in large quantities in the United States, and carotene, from which the vitamin is obtained, extracted from them quickly and easily.

"Ten thousand acres of carrots grown under proper conditions will yield 20 trillion units of vitamin A," declares Dr. Barnett. "Carrots may be harvested in California every month of the year, thus assuring a steady source of supply. But 10,000 additional acres of carrots cannot be planted and harvested on a moment's notice, nor can equipment for processing such large quantities of carrots be put into operation overnight.

"It would seem wise, therefore, to consider more carefully the possibilities which may lead to a shortage of vitamin A, either in the United States or in countries friendly to it, and immediately broaden carotene production facilities so that an adequate supply of vitamin A is assured for any emergency."

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SKY HOSTEL

Three miles above sea level, on Colorado's Mt. Evans, is this building, the highest hotel in the world

GEOGRAPHY

Three Mile High Hotel Built on Colorado Peak

Built Entirely by Hand, Structure Is Made of Granite With Nearly Half of Its Surface of Glass for View

THOSE fantastic fiction-writin' fellers who in five minutes—on the typewriter—run up a bubble-city on the moon, might as well take a lesson in the difficulties of such an enterprise, from a structure just completed here on earth.

It is the massive, turtle-backed sky hostel just completed on the crest of Mt. Evans, 62 miles west of Denver and 14,259 feet above sea level. At that height, internal combustion engines are ineffective. So workers went, not forward with science gadgets of the future, but back 4,000 years to the days of the Pyramids. The hostel, built of the massive granite slabs on the ground, was put up entirely by hand. Engineers spotted two- to five-ton stones that would fit. With slings and jacks, they were hauled into place by manpower.

The entire structure was virtually mortised into the granite of the peak with concrete. In winter, it must stand the fury of blizzards that rage across the peak at from 140 to 150 miles an hour, and it was designed to pass those winds across its rounded form, not buck them directly.

Nearly half its surface is of glass—for better viewing of some 10,000 miles of tumbled mountain and tawny plain visible from the peak. This is good thick glass, cemented into steel sash, but it has no other reinforcement. It will hold, confidently says Edwin A. Francis of Denver, the architect, being angled to turn the wind. Walls are from five to 11 feet thick, and some smaller windows are recessed five feet into the granite.

Workers brought up from Denver, 9,000 feet below, couldn't stand the altitude more than a day or so. So the contractor, W. H. Roehling, located a camp of brawny Scandinavian miners who make their living at 9,000 feet up in the mountains. They did the job, but even for them, the work-day was four hours. The frequent lightning storms presented another problem. Finally, after trying to insulate the building, it was grounded instead — with scores of thick copper leads buried into cinder-beds among the rocks.

Everything except the granite and the water had to be brought up from below, as must supplies for operating the hostel —even logs for the big fireplace, as it is more than 3,000 feet above timberline.

The water was found in natural cisterns in the rock crevices, which with their freezing and thawing, afford a lesson in the way Nature labors to bring the mighty mountains low.

The building is revolutionary, too, in that it is not tied down by cables, as are most buildings at such altitudes—for instance, the cosmic ray laboratory of the University of Denver, a hundred yards away.

A staff of 14 will operate the hostel this summer. There will be sleeping-rooms, and meals will be served.

The building stands at the very brink of the 3,000-foot perpendicular drop on the north face of the mountain, down to Summit Lake. This chasm is a "cirque" typical of high Rocky Mountain peaks, carved and ground out by a primordial glacier now gone, and leaving the lake as its sole memento.

Though 62 miles from Denver, the crest of Mt. Evans is a Denver mountain park. The hostel was built by the Mt. Evans Club, composed of Denver business men who have agreed to turn it over to the Forest Service in 20 years. It cost about $50,000. Certainly the highest hotel in the U. S., it is reached by the highest auto road, wide, safe and oiled to within five miles of the summit. The rest will be oiled this summer. The hostel is 150 feet higher than the top of Pikes Peak.

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● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by the *U. S. Coast and Geodetic Survey* of the following preliminary epicenter:

Tuesday, July 29, 8:15 p.m., EST

Near Prince William Sound, Head of Kenai Peninsula. Latitude, 61 degrees north. Longitude, 148 degrees west.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see SNL, July 19.

RESOURCES

Importance of Tin to Defense Stressed in Minerals Yearbook

Despite All Efforts To Accumulate a Stockpile, Best Estimates Place Supply at Only Year's Needs

ONE reason for the tense interest with which the United States government is watching Japan's southward grabs is disclosed in the chapter on tin in the new *Minerals Yearbook*, which will be published this month by the U. S. Bureau of Mines. Despite all efforts to accumulate a stockpile of this vitally necessary metal, the most optimistic estimate sets the supply now on hand at only a little over a year's normal consumption. While increased imports from Bolivia and other parts of the world will help, there is nowhere near tin enough in sight wholly to replace the Indo-Malaysian supply should it be cut off.

Of the 169,500 long tons of tin used in the world last year, this country consumed nearly half—76,000 tons. Britain accounted for 32,000 tons, or nearly half of the remainder. This was substantially more than the combined tin utilization of the combined Axis powers, which totaled 26,500 tons. (The tons in these reckonings are long tons of 2,240 pounds, not the more familiar short ton of 2,000 pounds.)

Britain has long had a near-monopoly of tin smelting. In normal years about half of the world's supply has been smelted in British Malaya, and an additional quarter in the British Isles themselves. Most of the remaining fourth has been smelted in the Netherlands, the Netherlands Indies, and China.

It has never been considered economically advisable to set up tin smelters in the United States, because the finished product could be purchased abroad more cheaply than it could be produced from imported ore in this country. Now, however, with a war emergency staring us in the face, one smelter has been contracted for, to be built at Texas City, near Galveston. It will be government-owned, but operated under contract by an American affiliate of one of the larger Dutch firms. Its cost is to be $3,500,000, and its annual output 18,000 tons of refined tin.

Bolivia is the only important tin-producing country in the Western Hemisphere—which accounts, perhaps, for the recent determined efforts of Nazi agents to produce political turmoil there. The United States has contracted with several Bolivian mining concerns to purchase annually for the next five years sufficient ore to produce 18,000 tons of tin.

The war is having the effect of sending smelters to the mines, instead of shipping ore to smelters in the countries around the North Sea. Netherlands Indies ore, overtaxing the capacity of smelters on the spot, is at present being shipped to smelters in British Malaya, while additional plant capacity is being erected. Ore from the Belgian Congo, cut off from the homeland, is coming to the United States, but smelters are being erected in the Congo as well.

At present, the Axis powers are not known to be suffering from any tin shortage. Their tin consumption has always been more modest than that of the English-speaking nations, and in their rush over the Low Countries and northern France in the spring of 1940 they captured sufficient stocks to last for some time. In addition, Germany may have been receiving some East Indian tin via Japan and the USSR before the outbreak of the new Nazi-Soviet war. Since there are no significant bodies of tin ore anywhere in Europe or North Africa, the pinch may be felt in the Axis lands if the war lasts more than another year or so.

Suggestions that tin cans be collected and de-tinned are not received too optimistically by metallurgists. There are commercial de-tinning plants, but they operate mainly on the clean scrap from tinplate plants. Crushing and baling tin cans from city dumps is a marginal industry, practicable only when the price of tin is high, but perhaps justifiable in emergencies like the present.

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RESOURCES

Crude-Oil Reserves Reached New Peak on January 1, 1941

DESPITE the possible oil shortage in the eastern part of the country, on account of transportation difficulties, the crude-oil reserves of the United States, consisting of supplies "in sight or extractable by present methods and at approximately current prices reached a new peak on January 1, 1941."

This is revealed in the *Minerals Yearbook*. At the beginning of 1941, says the yearbook, quoting the American Petroleum Institute, the total reserve was 19,025,000,000 barrels, compared with 18,483,000,000 barrels a year before. At present rate of use, this is a 13-year supply. During 1940, 1,894,000,000 barrels of reserves were discovered and developed.

Summarizing world production, the report says:

"The estimated world production of crude petroleum in 1940 was 2,149 million barrels—a gain of 70 million or 3.4%. United States production rose from 61% of the world total in 1939 to 63% in 1940—a gain of 87 million barrels; production in the rest of the world declined 16 million barrels. Russia showed no substantial change, while output in Venezuela decreased 21 million barrels, in Iraq 5 million, and in Rumania 3 million. Colombian production gained 4 million. Increased exports of crude and refined oils to the United States from Caribbean countries partly offset the loss of their continental European markets and helped to maintain their crude output at a higher level than might have been expected.

"In the United States the new production of all oils increased by 91 million barrels, rising from 1,319 million in 1939 to 1,410 million in 1940. This output, however, exceeded demand, as indicated by an increase of 39 million barrels in the stocks of all oils compared to a decrease of 41 million in the stocks of all oils in 1939."

As usual, 1940 set a new record for domestic motor fuel demand, with 589,424,000 barrels, an increase of 6% over 1939. Even greater was the increase in fuel oil. (*Turn to page* 93)

PUBLIC HEALTH

Sickness Will Keep 500,000 AWOL from Work

APPROXIMATELY 500,000 workers will be AWOL this year from the industrial army behind the lines because of sick absenteeism, the trustees of the newly-christened Industrial Hygiene Foundation, formerly the Air Hygiene Foundation, predict.

This means about one billion man-hours lost in heavy industries alone. The average worker loses eight days a year because of illness. For every day that figure can be reduced there will be a gain of 120,000,000-man-hours a year or the services of 60,000 men full time.

The Foundation, which has changed its name to describe more clearly its expanding activities for protecting the health of workers, has sent a special bulletin to its member companies calling on the affiliated industrial concerns to take every possible precaution to combat the health hazards that increase with increased production.

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FORESTRY

Mahogany a Possible Timber Crop For Florida

MAHOGANY may some day be a money-making timber crop in southern Florida, Prof. Frank E. Egler of the New York State College of Forestry suggests. (*Journal of Forestry*, August)

The southern part of the peninsula, he points out, is similar in climate and other ecological conditions to the West Indian islands where one species of mahogany flourishes. Mahogany trees are planted along the streets in some Florida cities, and they are also found growing wild in the "hammocks" or hardwood groves that dot the flat Florida landscape.

West Indian mahogany trees grow fairly rapidly under Florida conditions, Prof. Egler states. Two-year-old saplings planted at Coral Gables in 1935 were 25 feet high in 1940. They are also more resistant to cold than might be expected of tropical trees, for they came through the severe freeze of the winter of 1940, that killed many other tropical plants in southern Florida.

Mahogany trees will grow in a wide variety of habitats, from dry and exposed to semi-shaded and wet. They do, however, need protection from fire, a too common and tolerated woodland evil in Florida.

Prof. Egler indicates an increasing need to take thought for future mahogany supplies. The United States, with an annual utilization of about 24 million board feet, imports four-fifths to nine-tenths of the world's total cut. And since mahogany cutters in tropical lands naturally take the trees nearest available transportation routes (usually rivers) it is becoming increasingly difficult and expensive to bring mahogany logs to market.

Science News Letter, August 9, 1941

PLANT PATHOLOGY

Fungus Disease of Cotton Is Reported from China

BELEAGUERED China has a new enemy that strikes from within. It is a fungus-caused disease of cotton, reported from Szechuan Province by two Chinese plant pathologists, Lee Ling and Johwa Y. Yang. (*Phytopathology*, July.) Chinese cotton farmers, who call the disease "dry scar" because of its characteristics marks on stems and twigs, realize its potential seriousness and eradicate affected plants as fast as they appear.

"Dry scar" breaks out generally in rainy seasons when humidity is persistently high and temperatures of 75 to 80 degrees prevail. Dry weather suppresses it.

Science News Letter, August 9, 1941

PLANT PATHOLOGY

Virus Diseases Carried By Parasitic Vine

DODDER, the pale yellow, leafless, parasitic vine that preys on the stems of other plants by sinking root-like growths into them, has been proven guilty of carrying virus diseases from one plant to another, in experiments conducted at the Rockefeller Institute for Medical Research at Princeton, N. J. by Dr. Folke Johnson. (*Phytopathology*, July.)

Dodder shares with other, non-parasitic vines the habit of twining around one stem for a distance, then reaching over to a neighboring stem. The living bridge thus formed sufficed to carry the viruses from infected to uninfected plants, under controlled laboratory conditions. Among the virus diseases thus transmitted by dodder were aster yellows, bushy-stunt of tomatoes, tobacco mosaic, curly-top of sugar beets and cucumber mosaic.

Science News Letter, August 9, 1941

IN SCIENCE

ORNITHOLOGY

National Museum Head Returns from Expedition

BRINGING with him specimens representing the bird life of a part of South America hitherto unvisited by naturalists, Dr. Alexander Wetmore, director of the U. S. National Museum, has just returned from a two-months' expedition into the Guajira peninsula of Colombia. The remainder of the collection will follow in a short time. It is in charge of another member of the expedition, M. A. Carriker, Jr., who remained behind to complete arrangements for shipping. Dr. Wetmore states that the collection probably contains a number of hitherto unknown bird species.

The Guajira peninsula, which the expedition penetrated, lies at the northeast corner of Colombia and constitutes the northernmost extension of continental South America. It is sparsely inhabited and without roads. The expedition traveled in a three-ton truck, using such trails as there were and following the stony beds of dry streams. Part of the necessary supplies consisted of two hundred-gallon drums of gasoline.

Science News Letter, August 9, 1941

PHYSIOLOGY

Natural "Muscle Oil" Is Found in Enzyme

DISCOVERY of a natural "muscle oil" was announced by Dr. Sidney P. Colowick and Dr. Herman M. Kalckar, of Washington University School of Medicine.

The doctors did not call this substance a muscle oil, and it is not the kind of oil you rub on tired, aching muscles. It is, in fact, not an oil but an enzyme, or ferment. Enzymes act like lubricating oils in the body in that they help along certain vital chemical processes.

The enzyme Dr. Colowick reported is a protein enzyme which enables animals to combine sugar and phosphate, a necessary step in the operation of body muscles. The enzyme was obtained in pure form and its effects upon chemical reactions in the muscles were studied.

Science News Letter, August 9, 1941

NCE FIELDS

CHEMISTRY

Soybean Protein to Replace Milk Casein

SOYBEAN protein is scheduled to replace milk casein as paper sizing, as an adhesive in making plywood, as an ingredient in water paint, and in many other industrial uses, chemists of the U. S. Department of Agriculture state. Freeing milk casein from industrial demands will aid national defense as well as the aid-to-Britain program, for casein is the raw material from which cheese is made, and more cheese is one of the prime needs of the food-export program.

Industrial uses for soybean protein were worked out at the Department's soybean research laboratory at Urbana, Ill., more than four years ago, before their possible importance to national defense was seriously thought of. Now the results of the research are ready for immediate, full-scale application.

It is estimated that 10,000 tons of soybean protein will be required annually, on the basis of present needs, to make up for casein shortage. This does not allow for probable increasing needs. Present production is only about 2,500 or 3,000 tons a year. Existing plant capacity will therefore have to be at least tripled.

Soybean protein is extracted by various chemical processes from the meal that is left after oil has been pressed from the beans.

Science News Letter, August 9, 1941

NUTRITION

Chestnut Leaves, Spinach High in Vitamin K

SPINACH, that much scorned, praised and debunked vegetable, is one of the richest sources of the anti-bleeding vitamin K, being outranked only by chestnut leaves, according to a list of sources of this vitamin which appears in a new book, *Vitamin K,* (*Reviewed SNL, this issue.*) This is a kind of biography of the vitamin written for doctors and other medical scientists by Dr. Hugh R. Butt and Dr. Albert M. Snell, of the Mayo Clinic, two men who pioneered in the use of vitamin K to save dangerously sick jaundiced patients from bleeding to death.

Cauliflower and cabbage are other good sources of this vitamin, which is widely distributed in nature. Green leaves are the richest source of the anti-bleeding vitamin, but leaves that grow in the dark contain much less of it. It is found also in alfalfa and pine needles, in tomato plants, in certain bacteria, and in the dried tissues of the hog, dog, chicken and man, and it has been made synthetically in the chemists' laboratories.

You will not find vitamin K stressed with the other vitamins in advice on diets for good health. The healthy person, so far as present knowledge goes, can hardly fail to get enough of this vitamin from his ordinary diet. Those who need to be given the vitamin like a medicine are those who are not absorbing the vitamin from their food because of either a damaged liver or some mechanical obstruction to the flow of bile. As a result, they do not have enough of a substance called prothrombin which is necessary for normal blood clotting.

A person whose blood does not clot normally is in danger of bleeding to death from a small cut. In hemophilia, the hereditary bleeder's disease which used to be called the curse of the Hapsburgs because it ran in that family of European royalty, the failure of the blood to clot is not due to lack of prothrombin, so vitamin K does not help.

Newborn babies also lack prothrombin, and many of them bleed dangerously. Vitamin K has proved a life-saver for them, and in many hospitals is now being given to their mothers before the babies are born to make sure the babies will start life with an abundant supply.

Science News Letter, August 9, 1941

ENGINEERING

4 Times Sun's Efficiency Claimed for New Sun Lamp

FOUR times the sun-tanning efficiency of natural July sunlight is claimed for a new ultraviolet lamp developed by engineers of the Westinghouse Lamp Division. The sun gives approximately 120 micro-watts of ultraviolet of suntan wavelengths per square inch, as measured on the beach with a titanium-cell photometer. The new lamp, which has a built-in reflector, produced 480 micro-watts per square inch. On the beach, a sunbather can give his bare back a light tan in about 20 minutes. With the new lamp, the process takes only five minutes.

Science News Letter, August 9, 1941

GEOLOGY

Washington Nickel Deposit Examined by U. S. Geologists

A BODY of nickel ore, containing also a little gold, located in the state of Washington, has just been examined by two field workers of the U. S. Geological Survey. The total quantity of workable ore in sight is estimated at 15,000 tons at a minimum, and possibly as much as 50,000 tons. Combined concentration of nickel and gold make the ore worth about $2 a ton. There are two types of ore, of which the more abundant is not economically workable. If extraction of the second, paying type is undertaken, it will have to be worked on a relatively small-scale basis.

Science News Letter, August 9, 1941

ASTRONOMY

Van Gent Comet May Reach Naked Eye Visibility

VAN GENT's comet, discovered in May by a South African astronomer, may reach naked eye brilliance in spite of early calculations which indicated that it would remain too faint to be seen without a telescope.

This schedule called for a brightness of magnitude 8.7 on July 14. Instead, it is revealed by Dr. N. Y. Bobrovnikoff, director of the Perkins Observatory, the comet on that date had reached magnitude 6.98, which is about 4 1/3 times brighter than expected. About Sept. 3 when nearest the sun, the comet will reach it maximum brilliance. Should the present excess be maintained, it may well reach the sixth magnitude, which is considered to be the faintest value at which a star can be seen with the naked eye. A comet is more difficult to see than a star, because its light is more diffused. However, a sixth magnitude comet should be seen without much trouble, on a dark clear night, with the aid of binoculars. In fact, Dr. Bobrovnikoff's measures of brightness were made with the aid of binoculars, by comparing the comet with nearby stars of known brilliance.

The comet, during early August, is in the northwestern evening sky, to the right of the bright star Arcturus. It is moving through the constellation of Canes Venatici, the hunting dogs, towards Ursa Major, the great bear, of which the big dipper is part. During October it will pass just below the bowl of the dipper.

Science News Letter, August 9, 1941

PHYSIOLOGY

Protect Your Sinuses

Precautions Necessary When Swimming Because Humans Lack Workable Muscle for Closing Nostrils in Water

By JANE STAFFORD

THE old nursery rhyme that starts "Mother, may I go out to swim?" may now be recited with the new last line, "Wear a nose clip in the water."

That is the advice doctors are now giving to those who do much underwater swimming and diving, especially if they have had frequent bouts of sinus and ear trouble. The object, of course, is to keep water out of the nose, ears and sinuses.

Maybe you can swim like a fish and dive like a swan—not that swans dive, but some birds do, the diving petrel, for example. You cannot, however, shut your nostrils and ears automatically or even deliberately when you submerge as diving mammals and birds do.

These animals, which include diving petrels, walruses, seals, alligators, beavers and manatees, have a complicated ring-like muscle which shuts the nostrils tightly when the head is submerged. Those birds which have no outside nostrils have a small elongated tongue which they can plug tightly into the internal nostrils. When they have to open their beaks under water to grab a fish, they can, nevertheless, shut water out of the nostril and the air passages further back.

Man has lost that muscle, or at best has only a small remnant of it which can only rarely be demonstrated to medical students at the dissecting table. It has the Latin name, compressor narium. Evolutionary ages ago, when man's ancestor lived in the water, he probably had a large and workable nostril-squeezer. Not even the most talented ear-wiggler today, however, can move his compressor narium to shut his nostrils for a dive under water.

That is why so many of our divers and swimmers come out of the water with a raw, irritated or stuffy feeling in the nose, a sense of pressure in the head, and a roaring or bubbling sound in the ears followed by a period of not hearing well. You can see them at any bathing beach or pool, snorting and squirting water out of their noses, jogging on one foot with head hanging to one side, trying to get the water out and to get rid of the stuffy feeling or the pain or ache in the cheek or above the eye. If you do much diving or swimming yourself, you know the feeling well. The jogging and the blowing may dislodge a little water, but unfortunately the pain or ache or stuffy feeling persists in all too many cases, marking the beginning or return of sinus or ear trouble.

If you were to look inside the nose of one of these divers or swimmers, you would see that the delicate skin that lines it was rough and red, like a dishwasher's hands. Doctors call this delicate kind of skin, which lines not only nostrils but also sinuses and the rest of the breathing passages, the mucous membrane. Normally it is covered with a thin fluid which serves as a protection for the tender membrane.

This fluid, called mucus, acts as a trap for germs, dirt or other foreign substances that get into the nose. The wave-like movements of tiny hairs carry it, germs and all, to the back of the nose where there is a passage to the mouth, there to be swallowed or spit out. The wave of the hairs is strong enough, one doctor reported, to move ink droplets about four-tenths of an inch per minute, or to move the mucus from the front to the back of the nose in 10 minutes.

Keeping this mucus film to cover the inside of the nose and moving at its normal rate is reported to be the most important single factor in preventing and eradicating infection in the nose.

When water is constantly entering your nose from underwater swimming, repeated diving, or the splash of backstroke swimming, the protective mucous covering is washed away. Chemicals in the water and the shock of the coldness of the water may stop the waving movement of the little hairs. And there you are, with nothing to hold back germs in the water or in your own nose, for that matter, which get washed by the water into the sinuses and the Eustachian tubes leading from the back of the nose and mouth to the ears. The sinuses and Eustachian tubes, being ordinarily protected from germs, have not the power to resist them that the nostrils have, one doctor points out.

The final straw to complete your discomfort and the danger to your health comes if the forcible inrush of water damages the delicate skin that lines the inside of the breathing airways, making it swell up so that the exits of the sinuses are closed and water which has gotten in cannot get out. This last may also happen when water is forced inside the ears during a dive if the force is strong enough to break the eardrum or if you already have a little hole in it, as many people have.

Once water and germs get shut up inside the sinuses or the ear, you are likely to be in for a lot of pain and a siege with fast-growing germs that can cause serious trouble.

Ear, nose and throat doctors, knowing these facts, have for a number of years insisted that those who dive and swim underwater should wear ear plugs, and try to keep the water out of their noses by breathing in through the mouth and out through the nose.

This last is easier said than done, as you may have discovered for yourself. Dr. David Mezz, a Brooklyn physician who swims himself and owns to sinus trouble as a result of his aquatic activity, reviewed some of these facts in a report to the *Laryngoscope*, a scientific journal for nose and throat doctors.

KEEPS WATER OUT

This device, or one like it, is the human's substitute for that muscle, now useless, which used to close the nostrils.

PROTECTED

This bathing beauty who is a resident of the National Zoological Park in Washington doesn't need to worry about his sinuses when going into the water. The hippopotamus, like most aquatic mammals and birds, has anatomical provision for closing his nostrils to keep water out. This is shown in the illustration on the front cover which shows the same animal swimming. In the close-up of Mr. Hippo the nostrils are safely closed.

He made some tests with expert swimmers and divers who volunteered to help him find what effect the style of breathing and swimming had on keeping water out of their noses. He found that quiet, face-down floating is most effective in preventing water from getting into the nose. Neither nasal nor mouth exhalation keeps the water out. Feet-first diving, repeated diving and back-stroke swimming are the worst for getting water into your nose. He verified these findings in tests with a glass nose which he pulled through the water in the various positions of diving and swimming.

"These findings were substantiated in another and more significant way," he reports. "Two of our volunteers had stuffy noses and a watery drip for several hours, and one other complained of a full head and an ache above the left eye following the diving sessions. We noticed that J. L. hopped around after most of the tests, trying to dislodge the water that had found its way into the middle ear by way of the Eustachian tube."

Breathing exclusively through the mouth while swimming and diving has most recently been advised for keeping water out of the nose. Not even this is entirely successful, Dr. Mezz declares. Tests made with expert divers showed that though they may think they are holding air in their lungs while they dive ready to expel it under water, they "really do no breathing during the dive and pierce the water with surprisingly little air left in the lungs."

Most of it is lost in the effort of the dive. Enough is left, apparently, to create a positive pressure that prevents water getting into the nose as the diver plunges into the water, but there is not enough air in his lungs and breathing passages to keep the water from getting in during the under-water and breaking-water phase of the dive.

The answer to all this, in Dr. Mezz' opinion and that of other doctors, is something that will substitute for that lost nostril-squeezer muscle and completely block the water from the nose. Cotton plugs, adhesive tape straps and even clothes pins have been used. Most satisfactory, in Dr. Mezz' opinion, is a rubber covered, spring-steel nose clip with an elastic band to hold it around your head, or around your neck, when you are out of the water.

Science News Letter, August 9, 1941

Iran is attempting to grow *rubber trees,* hoping for commercial production.

An explorer who turned on short wave radio programs for *Amazon Indians* reported that the Indians liked classical music but thought jazz ugly.

PHYSIOLOGY

Nostril Closing Found Not So Rare as Believed

THE TRICK of closing one's nostrils when diving into the water is not a completely lost human accomplishment, despite medical opinion.

One of the leading physicists of the National Bureau of Standards Dr. L. B. Tuckerman, upon reading the Science Service article telling how animals can shut their nostrils to protect their sinuses while people can not, made known that in childhood he had recaptured this ability supposedly lost in the evolutionary process.

"Some of the boys who went swimming together when I was young heard about how hard it is to wiggle one's ears and make the muscle, compressor narium, close the nostrils." Dr. Tuckerman explained. "So we practiced faithfully until several of us could do both.

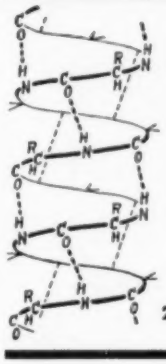
"I can still do both. When I dive today I always close my nostrils."

Doctors advise that water be kept out of the nose, ears and sinuses particularly if the swimmer has had sinus or ear trouble. Diving or underwater swimming forces water into these parts of the human anatomy, unless they are proteced. Infections may thus be spread. Use of a nose clip is recommended by those who can not close their nostrils naturally.

Convinced that the ability to use the compressor narium muscle was not exceedingly rare in human beings, Dr. Tuckerman made inquiries among some of his fellow scientists in his section of the Bureau of Standards and found one other person who, while he could not quite close his nostrils enough to stop completely the passage of air, could close them sufficiently to keep water out of his nose while diving.

Science News Letter, August 9, 1941

A botanist reported that in five years he pulled 37,639 *weeds* from a plot of ground ten feet square.



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Sir Leonard Woolley

The Director of the Joint Expedition of the British Museum and the Museum of the University of Pennsylvania to Mesopotamia gives an absorbing account of seven years of excavation, revealing the richness and perfection of man's workmanship of 5,000 years ago. Illustrated.

Science in War

25 British scientists tell what science has done in war and what it should do. Advances in aviation, medicine, armament, camouflage, morale, nutrition, agriculture, industrial management and other fields. How the problem of magnetic mines was solved in less than four days.

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INVENTION

Flashlights for Industry Built of Semi-Hard Rubber

FLASHLIGHTS for industrial use are built of semi-hard rubber, reinforced internally with brass parts, so that they can take hard punishment. One type, for use in explosive gaseous atmospheres, is so constructed that if the bulb breaks, a cold wire chills the filament instantly. *(Eveready Industrial Flashlights, National Carbon Co., New York City.)*

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From Page 87

"The demand for fuel oil in 1939—a record up to that time—was far surpassed in 1940," it is stated. "A gain in exports and a decline in imports of fuel oil in 1939 were just reversed in 1940 when, owing to adverse international trade conditions, exports dropped sharply below the record volume of 1939, while imports, because of an unusual demand for heating oils in the opening months of the year and an expanding industrial program, were double the quantity received from foreign sources in 1939. The running of more crude to stills and a greater percentage yield brought about increased production of fuel oil in 1940 compared with 1939. A downward trend in stocks in 1939, which resulted in a shrinkage of 12 million barrels in the fuel-oil inventory for that year, was checked in 1940 when 6 million barrels were added to storage."

The demand for paraffin wax also established a new record in 1940. In fact, states the *Yearbook*, "Coke was the only major product of petroleum for which the domestic demand was lower in 1940."

Science News Letter, August 9, 1941

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ECOLOGY

NATURE RAMBLINGS *by Frank Thone*

Records of Healing

OLD PHOTOGRAPHS can be of value to botanists and foresters in studying the rate of new growth that heals up old scars left in the forests by fires long ago. Such a series, taken at intervals from 1872 to the present time, has been studied by Ronald L. Ives, former Science Service staff member, as a by-product of several geological field trips into the high country of Colorado.

One particular area was burned over during the Indian troubles of 1862-63. In a few places the soil itself was burned away, all the way down to bedrock.

In 1872 came the pioneer photographer, William H. Jackson, accompanying the Hayden geological expedition as official picture-maker. His photographs, still extant, show the dead trees bare and barkless, with grass growing among their trunks.

The next series of photographs was taken in 1878. The grass was then being crowded out by a dense growth of mixed shrubs. After that there was a lapse of 20 years during which there is no existing photographic record. For the decade 1898-1908, however, there are abundant photographic records, which show the shrubs yielding place to the next stage in succession, an aspen forest. Maximum density of the aspen was reached in 1915.

As early as 1900 new conifer growth was showing itself here and there, and by 1920 the evergreens were beginning to overtop the aspens in many locations. Photographs taken about 1920 show the evergreens beginning to assert dominance. In some locations they covered 40% of the area. By 1935, the evergreen percentage had risen to 65, and in 1940 dominance was complete, with only scattered patches of aspen here and there, where growing conditions had not been favorable for the conifers.

Science News Letter, August 9, 1941

The Scientific Photographer

by A. S. C. LAWRENCE

Dr Lawrence sets out the principles of photographic procedure and describes its applications. His book expects a reader of scientific interest, but it has a definite practical bias and should be a stimulus to any photographer who wants to know what he is doing.

The book is up to date and fully illustrated. It treats the subject concisely, intelligently, seriously. It has sections on the chemistry of light sensitiveness, on the lens, on colour, on technique and on special scientific applications. $3.75

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RESOURCES

Research on Cotton Hosiery Now Attracting Attention

Present Production of Nylon Only About 20% of Demand For the Entire Full-Fashioned Stocking Industry

SHORTAGE of silk for ladies' hosiery, which was inevitable with the freezing of Japanese assets, has resulted in many inquiries by the trade concerning the U. S. Government's researches over the last few years on cotton for stockings.

This work has been done in the Research Center at Beltsville, Md., by the Textile Technology Division of the Bureau of Home Economics, U. S. Department of Agriculture. A small textile plant has been set up on the grounds, where many different designs of cotton fabric for hosiery are being made up in swatches. Also, the Division has made up 116 different styles of cotton stockings to show their appearance.

The effort has been to improve both appearance and the wearing qualities of the cotton hosiery, and at the same time add style, something which has not been done previously, said David H. Young, of the Textile Technology Division. The new stockings are an answer to the objections of the public and the manufacture that cotton hose get fuzzy, fade, wrinkle and wear poorly. The sheerest of hose cannot be made of cotton, he said, but in the service weight many designs and styles are available which compare most favorably with silk.

Much of the Division's effort now is being expended in the preparation of a Dictionary of Cotton and Lisle Hosiery. This will ultimately include about 300 designs, of which 33 have been placed on exhibit in New York at the Cotton Textile Institute and Mercerizers' Association of America, where they can be examined by manufacturers.

Mr. Young said that 85% of the machines now used in making full-fashioned hosiery can be used for cotton with only minor adjustments. Thus, it should not take long for production of these hose to start when the silk supply is curtailed.

"With cotton, nylon and strong rayon, the hosiery situation can easily be handled despite the silk shortage," he declared.

The present nylon production, he explained, is about 20% of that required for the entire full-fashioned stocking industry. This will be increased this winter with the completion of a new nylon plant in West Virginia. He expressed the belief that use of nylon in parachutes and for other defense purposes would not reduce this greatly, as there has been no let-up in the production for hosiery during recent months even though the government has bought large quantities for the other uses.

Science News Letter, August 9, 1941

INVENTION

Telephone For Use While Wearing Gas Mask Patented

WHILE wearing a gas mask, and without removing it, one can talk over a new type of telephone for which U. S. Patent 2,243,835 was granted. Issued to Rudolph Frank Stehlik, of Antwerp, Belgium, the rights on the patent are assigned to the Associated Telephone and Telegraph Company, of Chicago.

In places where there is a great deal of noise, or where it is impracticable to put the microphone to the speaker's mouth, as when he wears a gas mask, the "laryngaphone" may be used. This consists of a special transmitter held against the throat. It picks up the vibrations from the larynx through the flesh. Formerly transmitters of this kind were arranged to be fastened by strapping around the neck, and it was necessary to hold a receiver against the ear in addition.

The Stehlik invention is a hand set of the common type, with receiver and transmitter on the same handle, and is used in the usual way. But when one wants to use it as a laryngaphone, a special transmitter unit is plugged into the set, just above the usual transmitter. This automatically connects it, and disconnects the microphone. Then when talking, the receiver is held against the ear and the laryngaphone against the "Adam's apple."

Science News Letter, August 9, 1941

● RADIO

Thursday, August 14, 2:45 p.m., EST

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Harold Burris-Meyer, director of the Stevens Theatre, of the Stevens Institute of Technology, will discuss the control of sound in the theatre.

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PUBLIC HEALTH

Automatic Chlorinator Makes Drinking Water Safe

THE WORLD'S first automatic residual chlorinator, a mechanical guardian of public health which makes possible the most effective control of water sterilization, has recently been installed in an eastern city. By means of a sensitive cell which measures the electrical current in a flowing sample of water, it automatically measures and varies the dosage of chlorine, chemical agent employed in water sterilization, according to changing conditions in the water coming from the reservoir. *(Wallace and Tiernan Co., Belleville, N. J.)*

Science News Letter, August 9, 1941

The Army's new four-engined *bombing plane* has more horse-power than the locomotive of a fast train that pulls nearly 1,000 tons.

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•First Glances at New Books

Additional Reviews On Page 96

NUTRITION

THE EATER'S DIGEST—Asa C. Chandler—*Farrar & Rinehart,* 343 p., $2.75. First aid to those who are worried about what to eat, written by the Professor of Biology at Rice Institute, who discusses digestion, vitamins, girth control, nerves and many other problems in understandable language. Amusing pen and ink sketches enliven the book.

Science News Letter, August 9, 1941

DENTISTRY

YOUR TEETH, Their Past, Present, and Probable Future—Peter J. Brekhus—*Univ. of Minnesota Press,* 255 p., $2.50. This might be left on the waiting room tables of dental offices, for the author, who is Professor of Oral Diagnosis of the University of Minnesota's School of Dentistry, discusses our teeth in relation to civilization (is it a disease?), evolution, and what we can do to save our teeth.

Science News Letter, August 9, 1941

ZOOLOGY

LIVING TREASURE—Ivan T. Sanderson—*Viking Press,* 290 p., illus., $3.50. Vividly and entertainingly written accounts of animal life in Carribean countries, from parasol ants to tapirs, winding up with an utterly incredible frog called Whaw-Mooch by the Maya Indians. The author is also the artist; his illustrations are excellent.

Science News Letter, August 9, 1941

ENTOMOLOGY

BEEKEEPING AS A HOBBY—Kyle Onstott—*Harper,* 137 p., $2. An excellent book for beginners. Anyone looking toward beekeeping as a hobby, however, should be warned that it will prove so fascinating that he is in danger of being absorbed into it on a professional basis.

Science News Letter, August 9, 1941

ENGINEERING

LESSONS IN ARC WELDING (2d ed.)—*Lincoln Electric Co.,* 176 p., illus., 50c.

Science News Letter, August 9, 1941

ETHNOLOGY

WINONA AND RIDGE RUIN. Part I, Architecture and Material Culture—John C. McGregor—*Northern Arizona Society of Science and Art,* 309 p., illus., $5.25. Part II, Notes on the Technology and Taxonomy of the Pottery—Harold S. Colton—*Northern Arizona Society of Science and Art,* 75 p., illus., $1.75. A detailed and complete account of Indian ruins in northern Arizona, which are pronounced not Pueblo, but having traits of Pueblo, Hohokam, Mogollon, and other cultures blended.

Science News Letter, August 9, 1941

CHILD STUDY

THE PARENTS' MANUAL, A Guide to the Emotional Development of Young Children—Anna W. M. Wolf—*Simon and Schuster,* 331 p., $2.50. Conscientious parents will be relieved to learn that the first advice of the author, who is staff member of the Child Study Association of America, is to relax and enjoy your children.

Science News Letter, August 9, 1941

FICTION

SEE YOU AT THE MORGUE—Lawrence G. Blochman—*Duell, Sloan and Pearce,* 279 p., $2. A mystery novel depending for its denouement upon modern practice in the scientific laboratory of crime detection.

Science News Letter, August 9, 1941

GENERAL SCIENCE

FIELD MANUAL FOR MUSEUMS—Ned J. Burns—*Govt. Print. Off.,* 426 p., illus., 70c. Written directly for National Park Service field workers, this manual also contains a great deal of information helpful to museum staffs anywhere. There are chapters, for instance, on technical methods of handling specimens and materials, and on planning exhibits, arranging a museum building, and equipping exhibit rooms. There is a good bibliography, and a sample exhibit plan is worked out in detail.

Science News Letter, August 9, 1941

BOTANY

FLOWERS AND FLOWERING PLANTS (2d ed.)—Raymond J. Pool—*McGraw-Hill,* 428 p., illus., $3.50. A new edition of an excellent students' text in systematic botany, by one of the best-known of the present generation of botanists.

Science News Letter, August 9, 1941

PHOTOGRAPHY—CHEMISTRY

CHEMISTRY FOR PHOTOGRAPHERS—Allen R. Greenleaf—*American Photographic Publishing Co.,* 177 p., $2. Not intended as an exhaustive treatise on the chemistry of the photographic process, this book rather indicates the basic chemical principles involved in the most important photographic procedures and tells briefly the methods by which these are applied.

Science News Letter, August 9, 1941

PSYCHOLOGY

PRINCIPLES OF ABNORMAL PSYCHOLOGY—A. H. Maslow and Béla Mittelmann—*Harper,* 638 p., $3.50. Mental illness and the mental abnormalities of "normal" individuals are described in an understandable way in connection with the cultural, educational, and physiological factors that tend to produce or aggravate deviations from mental health. Much of the material is based on experimental work by the authors.

Science News Letter, August 9, 1941

MEDICINE

VITAMIN K—Hugh R. Butt and Albert M. Snell—*Saunders;* 172 p., $3.50. See page 89.

Science News Letter, August 9, 1941

ENGINEERING

APPLIED PHOTOGRAMMETRY (3d ed.)—Ralph O. Anderson—*Pub. by Author, Box 882, Chattanooga, Tenn.,* 191 p., diagrams, $3.

RIGOROUS ANALYSIS OF THE SCALE-POINT AND TILT FORMULAS—Ralph O. Anderson—Pub. by Author, 102 p., diagrams, $1.50 (Supplementary to Applied Photogrammetry). Photogrammetry is the procedure of obtaining survey data by means of aerial photographs, and is important both for commercial and military purposes. These two books will aid anyone wishing to put these principles into practice.

Science News Letter, August 9, 1941

CHEMISTRY

ORGANIC CHEMISTRY, An Introduction to the Carbon Compounds — Nicholas D. Cheronis—*Crowell,* 728 p., $4. As a result of his own experience, the author has arranged this book to give what he considers a more unified treatment than the usual text. The first four chapters give a survey of the field to be studied, then hydrocarbons and simpler groups are studied as a whole, and benzene is introduced early in connection with cyclic unsaturated hydrocarbons.

Science News Letter, August 9, 1941

PHYSICS

ELECTRON-INERTIA EFFECTS — F. B. Llewellyn—*Cambridge (Macmillan),* 104 p., $1.75. One of the well-known "Cambridge Physical Tracts," this little book covers concisely, and necessarily technically, effects that are becoming increasingly important with advanced vacuum tube technique.

Science News Letter, August 9, 1941

•First Glances at New Books

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PHYSICS

The WORLD AND THE ATOM—C. Moeller and Ebbe Rasmussen—*Van Nostrand,* 199 p., $2.75. Two prominent Danish physicists, one a theoretician, the other an experimentalist, here collaborate in an excellent summary of the recent developments in atomic physics.

Science News Letter, August 9, 1941

PHYSICS

COLLEGE PHYSICS (3d ed.)—Arthur L. Foley—*Blakiston,* 757 p., illus., $3.75. The aim of the first edition of this work, "not to impart facts, but to arouse and maintain a keen interest in physical phenomena," is maintained in this new edition. However, it represents a painstaking revision, based on the suggestions of a number of teachers who have used it.

Science News Letter, August 9, 1941

AERONAUTICS

ABC OF AVIATION, A Simplified Guide to Modern Aircraft (2d ed.)—Victor W. Pagé—*Henley,* 598 p., illus., $2.50. In this new edition of a very complete manual of all types of aircraft and their operation, additional data, particularly concerning the many new and more powerful engines, have been added.

Science News Letter, August 9, 1941

ELECTRICITY

INTERIOR ELECTRIC WIRING AND ESTIMATING (3d ed.)—Albert Uhl, Arthur L. Nelson and Carl H. Dunlap—*Amer. Tech. Soc.,* 354 p., illus., $2.50. Like the earlier editions, this complete work will be useful not only as a trade school text, but to the home-owner who wants to know how to do his own electrical work, in a safe and professional manner.

Science News Letter, August 9, 1941

LIBRARY SCIENCE

SCHOOLS AND PUBLIC LIBRARIES, Working Together in School Library Service—National Education Assn. and the American Library Assn.—*National Education Assn.,* 64 p., 25c. Report of a committee created in 1931 to facilitate cooperation by the two associations in the field of school library service.

Science News Letter, August 9, 1941

GENERAL SCIENCE

SCIENCE EXPERIENCES WITH TEN-CENT STORE EQUIPMENT—Carleton John Lynde—*International Textbook Co.,* 256 p., illus., $1.60. Any one, young or old, can get many hours of fun and learn a great deal about science by doing the experiments in this book. You can easily find the necessary apparatus in your own home, or the apparatus can be purchased for little money. This is a companion to an earlier book by the same author, "Science Experiences with Home Equipment."

Science News Letter, August 9, 1941

CHEMISTRY

FIRE-HAZARD PROPERTIES OF CERTAIN FLAMMABLE LIQUIDS, GASES AND VOLATILE SOLIDS—Committee on Flammable Liquids, comp.—*National Fire Protection Assn.,* 48 p., 25c. Many widely used chemicals are here listed with data concerning their fire hazard, such as flash point, ignition temperature and explosive limits of concentration.

Science News Letter, August 9, 1941

AERONAUTICS—ENGINEERING

PLANE FACTS FOR AIRPLANE AND ENGINE MECHANICS—Bert A. Kutakoff—*Military Book Co.,* 241 p., illus., $1.75. Concise information is given in handy question and answer form about the many tasks that military and commercial aviation mechanics have to perform.

Science News Letter, August 9, 1941

ENGINEERING

FLUID MECHANICS—Glen N. Cox and F. J. Germano—*Van Nostrand,* 274 p., illus., $3. The mechanics of fluids is a subject of great engineering importance, having to do not only with use of fluids for transmitting power, but also in the design of pumps, spillways, pipe lines, etc. This new work is intended as a text for junior engineering students.

Science News Letter, August 9, 1941

AERONAUTICS

ALL AMERICAN AIRCRAFT—Ernest K. Gann—*Crowell,* 122 p, illus., $2. An experienced air-lines pilot, Mr. Gann certainly knows his airplanes, and in this copiously illustrated book, he tells all about them.

Science News Letter, August 9, 1941

CHEMISTRY

CHEMICAL ANALYSIS OF ALUMINUM, Methods Standardized and Developed by the Chemists of Aluminum Company of America under the Direction of H. V. Churchill and R. W. Bridges (2d ed.)—*Aluminum Research Laboratories,* 120 p., 50c. A useful manual for the metallurgical chemist.

Science News Letter, August 9, 1941

PSYCHOLOGY

TIME AND THE MIND—Harriet Babcock—*Sci-Art,* 304 p., $3.25. Here is expounded the principle, developed by the author, that mental efficiency is quite distinct from mental capacity and is significant for the understanding of how individuals make social and vocational adjustments. Time, she says, may be thought of as a fourth dimension of the mind. On tempo depends the efficient working of the intelligence.

Science News Letter, August 9, 1941

CRIMINOLOGY

CRIMINAL YOUTH AND THE BORSTAL SYSTEM—William Healy and Benedict S. Alper—*Commonwealth Fund,* 251 p., $1.50. Describing a system of treatment for young offenders which attempts to prepare them for a useful life through responsibility, education, vocational training and physical activity—doing away with idle confinement, military discipline and painful restrictions of liberty.

Science News Letter, August 9, 1941

PHILOSOPHY—ENGINEERING

THE PHILOSOPHY OF POWER: Vol. 2, The Theory of Control—Donald Murray—*Williams and Norgate Ltd., London,* 412 p., 15 s. A second volume of unorthodox but provocative ideas by a veteran engineer, who believes in "the method of outrageous assertion." His bold visions of the future include a "perfect" railway system, with trains running at 300 miles an hour. Chiefly, however, the problems of organization and control of power in its application to a mechanized world.

Science News Letter, August 9, 1941

PALEONTOLOGY

A NEW TURTLE FROM THE MARINE MIOCENE OF OREGON—E. L. Packard—*Oregon State College,* 31 p., illus., 50c.

Science News Letter, August 9, 1941

METEOROLOGY

CANADIAN POLAR YEAR EXPEDITIONS 1932-33, Meteorology, Cape Hope's Advance, Chesterfield Inlet, Coppermine, Meanook, Vol. I—*Canada. Department of Transport, Air Services Branch, Division of Meteorological Services,* 452 p., $10. Detailed records, mainly tabulated, of data accumulated at four stations in the High North during the Polar Year of 1932-33. Of interest primarily to meteorologists; but this limited audience will find this publication invaluable.

Science News Letter, August 9, 1941